

# Work Order ID 142868

Monday, March 14, 2016 11:26:48 AM

**\*142868\***

Page 1

Item ID: D3319-3 Accept **\*N900040100\*** Setup Start **\*NS1\***  
 Revision ID: Stop **\*NS2\***  
 Item Name: Full Length Wearplate  
 Start Date: 3/15/2016 Start Qty: 12.00 **\*12\*** Cust Item ID:  
 Required Date: 3/31/2016 Req'd Qty: 12.00 **\*12\*** Customer:  
 Reference:

Approvals: Process Plan: MLS Date: MAR 14 2016 Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description                                                                   | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--------------------------------------------------------------------------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| Draw Nbr                       | Revision Nbr                                                                               |                      |         |        |              |               |               |                  |                |
| D3319                          | C                                                                                          |                      |         |        |              |               |               |                  |                |
| 100                            | FLOW WATER JET                                                                             | 0.00                 |         |        |              |               |               |                  |                |
| <b>*100*</b>                   |                                                                                            |                      |         |        |              |               |               |                  |                |
| Waterjet                       | Memo                                                                                       | 0.04                 |         |        |              |               |               |                  |                |
| FLOW CNC Waterjet              | 1-Cut as per Dwg D3319<br>Dwg Rev: <u>C</u><br>Prog Rev: <u>C</u><br>2-Deburr if necessary |                      |         |        |              |               |               |                  |                |
| 110                            | QC2- Inspect parts off machine FAI/FAIB                                                    | 0.00                 |         |        |              |               |               |                  |                |
| <b>*110*</b>                   |                                                                                            |                      |         |        |              |               |               |                  |                |
| QC                             | Memo                                                                                       | 0.00                 |         |        |              |               |               |                  |                |
| Quality Control                |                                                                                            |                      |         |        |              |               |               |                  |                |

100 OK 16/03/16  
110 OK 16/03/16

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

## WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

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|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____ | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |  |                                                                                                                   |  |
| Date : _____                                                 | Step #: _____                                                                                                                                                                      | QTY Effective : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | <b>MRB (QSI042) Approval</b><br><br><div style="border: 1px solid black; height: 150px; margin-top: 10px;"></div> |  |
| Description Work Order Deviation                             |                                                                                                                                                                                    | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |                                                                                                                   |  |
|                                                              |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                                                                                                                   |  |
|                                                              |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                                                                                                                   |  |
|                                                              |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  | Completed By                                                                                                      |  |
|                                                              |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  | Lead hand / Supervisor Approval Verification                                                                      |  |
|                                                              |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  | QC / QA Coordinator Approval                                                                                      |  |
|                                                              |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                                                                                                                   |  |

| Root Cause                                  |                                                |                                                 | FAULT CATEGORY                                             |                                                |                                               |
|---------------------------------------------|------------------------------------------------|-------------------------------------------------|------------------------------------------------------------|------------------------------------------------|-----------------------------------------------|
| Environment <input type="checkbox"/>        | No Re-verification <input type="checkbox"/>    | Pressure/Forced <input type="checkbox"/>        | Temperature/Cure <input type="checkbox"/>                  | Power Loss/Surge <input type="checkbox"/>      | Positioned Wrong <input type="checkbox"/>     |
| Design <input type="checkbox"/>             | Operator <input type="checkbox"/>              | Bending <input type="checkbox"/>                | Set-up <input type="checkbox"/>                            | Folio/Program <input type="checkbox"/>         | Outside Dimensions <input type="checkbox"/>   |
| Doc/Data <input type="checkbox"/>           | Offset/Setup <input type="checkbox"/>          | Centre Not Concentric <input type="checkbox"/>  | BOM/Route <input type="checkbox"/>                         | Grain <input type="checkbox"/>                 | Over/Under tolerance <input type="checkbox"/> |
| Equip/Tooling <input type="checkbox"/>      | Supplier <input type="checkbox"/>              | Cracks <input type="checkbox"/>                 | Broken/Damage/Defect <input type="checkbox"/>              | Weld <input type="checkbox"/>                  | Part Incorrect <input type="checkbox"/>       |
| Handling/Pre <input type="checkbox"/>       | Training <input type="checkbox"/>              | Crimp/Kink/Ripple/Wave <input type="checkbox"/> | Inspection Incomplete/Unqualified <input type="checkbox"/> | Wrong Stock Pulled <input type="checkbox"/>    | Part Lost/Missing <input type="checkbox"/>    |
| Material <input type="checkbox"/>           | Use for Testing <input type="checkbox"/>       | Cuffs <input type="checkbox"/>                  | Contamination <input type="checkbox"/>                     | Out of Sequence <input type="checkbox"/>       | Part Moved <input type="checkbox"/>           |
| Internal Transport <input type="checkbox"/> | Poor Information <input type="checkbox"/>      | Crushing <input type="checkbox"/>               | Countersink <input type="checkbox"/>                       | Off-set <input type="checkbox"/>               | Drawing <input type="checkbox"/>              |
| Tribal Knowledge <input type="checkbox"/>   | Rushing <input type="checkbox"/>               | Heat Treat <input type="checkbox"/>             | Cut Too Short <input type="checkbox"/>                     | Mislabeled <input type="checkbox"/>            | Finish <input type="checkbox"/>               |
| LOA <input type="checkbox"/>                | Product Improvement <input type="checkbox"/>   | Wave/Twist in Tube <input type="checkbox"/>     | Instructions Incomplete/Unclear <input type="checkbox"/>   | Fit/Function <input type="checkbox"/>          | Misread <input type="checkbox"/>              |
| Substation <input type="checkbox"/>         | Process Improvement <input type="checkbox"/>   | Marks/Chatter <input type="checkbox"/>          | Drill Holes <input type="checkbox"/>                       | Misaligned/off center <input type="checkbox"/> | Turning Sequence <input type="checkbox"/>     |
| Past Expiry Date <input type="checkbox"/>   | Manufacturing Process <input type="checkbox"/> | <b>OTHER :</b> _____                            |                                                            |                                                |                                               |
| Misidentified <input type="checkbox"/>      | Past Due <input type="checkbox"/>              |                                                 |                                                            |                                                |                                               |



DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

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| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>             Skid-tube <input type="checkbox"/><br/>             Machining <input type="checkbox"/><br/>             Thermoforming <input type="checkbox"/><br/>             Large Fab <input type="checkbox"/> </div> <div>             Cross tube <input type="checkbox"/><br/>             Small Fab <input type="checkbox"/><br/>             Finishing <input type="checkbox"/><br/>             Composite <input type="checkbox"/> </div> <div>             Water Jet <input type="checkbox"/><br/>             Prod. Eng. Coord. <input type="checkbox"/><br/>             Rec/Store/Packaging <input type="checkbox"/><br/>             Supplier <input type="checkbox"/> </div> <div>             Engineering <input type="checkbox"/><br/>             Quality <input type="checkbox"/><br/>             Other <input type="checkbox"/> </div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |                                              |  |
| Date :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Step #:                                                                                                                                                                            | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | MRB (QSI042) Approval                        |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                    | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | Completed By                                 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | Lead hand / Supervisor Approval Verification |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | QC / QA Coordinator Approval                 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                              |  |
| <b>Root Cause</b><br><div style="display: flex;"> <div style="flex: 1;">             Environment <input type="checkbox"/><br/>             Design <input type="checkbox"/><br/>             Doc/Data <input type="checkbox"/><br/>             Equip/Tooling <input type="checkbox"/><br/>             Handling/Pre <input type="checkbox"/><br/>             Material <input type="checkbox"/><br/>             Internal Transport <input type="checkbox"/><br/>             Tribal Knowledge <input type="checkbox"/><br/>             LOA <input type="checkbox"/><br/>             Substation <input type="checkbox"/><br/>             Past Expiry Date <input type="checkbox"/><br/>             Misidentified <input type="checkbox"/> </div> <div style="flex: 1;">             No Re-verification <input type="checkbox"/><br/>             Operator <input type="checkbox"/><br/>             Offset/Setup <input type="checkbox"/><br/>             Supplier <input type="checkbox"/><br/>             Training <input type="checkbox"/><br/>             Use for Testing <input type="checkbox"/><br/>             Poor Information <input type="checkbox"/><br/>             Rushing <input type="checkbox"/><br/>             Product Improvement <input type="checkbox"/><br/>             Process Improvement <input type="checkbox"/><br/>             Manufacturing Process <input type="checkbox"/><br/>             Past Due <input type="checkbox"/> </div> </div> |                                                                                                                                                                                    | <b>FAULT CATEGORY</b><br><div style="display: flex;"> <div style="flex: 1;">             Pressure/Forced <input type="checkbox"/><br/>             Bending <input type="checkbox"/><br/>             Centre Not Concentric <input type="checkbox"/><br/>             Cracks <input type="checkbox"/><br/>             Crimp/Kink/Ripple/Wave <input type="checkbox"/><br/>             Cuffs <input type="checkbox"/><br/>             Crushing <input type="checkbox"/><br/>             Heat Treat <input type="checkbox"/><br/>             Wave/Twist in Tube <input type="checkbox"/><br/>             Marks/Chatter <input type="checkbox"/> </div> <div style="flex: 1;">             Temperature/Cure <input type="checkbox"/><br/>             Set-up <input type="checkbox"/><br/>             BOM/Route <input type="checkbox"/><br/>             Broken/Damage/Defect <input type="checkbox"/><br/>             Inspection Incomplete/Unqualified <input type="checkbox"/><br/>             Contamination <input type="checkbox"/><br/>             Countersink <input type="checkbox"/><br/>             Cut Too Short <input type="checkbox"/><br/>             Instructions Incomplete/Unclear <input type="checkbox"/><br/>             Drill Holes <input type="checkbox"/> </div> <div style="flex: 1;">             Power Loss/Surge <input type="checkbox"/><br/>             Folio/Program <input type="checkbox"/><br/>             Grain <input type="checkbox"/><br/>             Weld <input type="checkbox"/><br/>             Wrong Stock Pulled <input type="checkbox"/><br/>             Out of Sequence <input type="checkbox"/><br/>             Off-set <input type="checkbox"/><br/>             Mislabeled <input type="checkbox"/><br/>             Fit/Function <input type="checkbox"/><br/>             Misaligned/off center <input type="checkbox"/> </div> <div style="flex: 1;">             Positioned Wrong <input type="checkbox"/><br/>             Outside Dimensions <input type="checkbox"/><br/>             Over/Under tolerance <input type="checkbox"/><br/>             Part Incorrect <input type="checkbox"/><br/>             Part Lost/Missing <input type="checkbox"/><br/>             Part Moved <input type="checkbox"/><br/>             Drawing <input type="checkbox"/><br/>             Finish <input type="checkbox"/><br/>             Misread <input type="checkbox"/><br/>             Turning Sequence <input type="checkbox"/> </div> </div> |  |                                              |  |
| <input type="checkbox"/> OTHER : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                              |  |

**Work Order ID 142868****\*142868\***

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Monday, March 14, 2016 11:26:48 AM

Item ID: D3319-3 Accept **\*N900040100\*** Setup Start **\*NS1\***  
Revision ID: Stop **\*NS2\***  
Item Name: Full Length Wearplate  
Start Date: 3/15/2016 Start Qty: 12.00 **\*12\*** Cust Item ID:  
Required Date: 3/31/2016 Req'd Qty: 12.00 **\*12\*** Customer:  
Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

| Sequence ID/<br>Work Center ID               | Operation<br>Description                                                                           | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp                   |
|----------------------------------------------|----------------------------------------------------------------------------------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------------------------|
| 160<br><b>*160*</b><br>Large Fab             | Weld per dwg A/R Hardcoat steel Batch: _____<br>Large Fab                                          | 0.00                 |         |        |              | 10            |               | 16-03-23         |                                  |
| Large Fab                                    | Memo<br>Weld hard surface using D3319-3T2 per QSI 004 and Dwg D3319<br>Batch A/R 7560 Hardcoat Rod | 0.06                 |         |        |              |               |               |                  | 1131416                          |
| 170<br><b>*170*</b><br>QC<br>Quality Control | QC10- Inspect visual per QSI004- ground welds<br><br>Memo                                          | 0.00<br><br>0.00     |         |        |              | 10            |               |                  | OAS<br>38<br>9-89<br>MAR 23 2016 |
| 180<br><b>*180*</b><br>QC<br>Quality Control | QC5- Inspect part completeness to step on W/O<br><br>Memo                                          | 0.00<br><br>0.00     |         |        |              | 10            |               |                  | OAS<br>38<br>9-89<br>MAR 23 2016 |

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



# WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

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| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                            | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input checked="" type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> |                                               | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><table style="width:100%; border: none;"> <tr> <td style="width:15%;">Skid-tube <input type="checkbox"/></td> <td style="width:15%;">Cross tube <input type="checkbox"/></td> <td style="width:15%;">Water Jet <input type="checkbox"/></td> <td style="width:15%;">Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input checked="" type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table> |                                             |                                 |                                   |                                                                                                                                                                                |                                       | Skid-tube <input type="checkbox"/>     | Cross tube <input type="checkbox"/> | Water Jet <input type="checkbox"/>    | Engineering <input type="checkbox"/> | Machining <input type="checkbox"/> | Small Fab <input type="checkbox"/>       | Prod. Eng. Coord. <input type="checkbox"/>  | Quality <input type="checkbox"/>          | Thermoforming <input type="checkbox"/>    | Finishing <input type="checkbox"/> | Rec/Store/Packaging <input type="checkbox"/> | Other <input type="checkbox"/>                          | Large Fab <input checked="" type="checkbox"/> | Composite <input type="checkbox"/>           | Supplier <input type="checkbox"/>         |                                                |                                        |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |  |  |  |  |                                          |                                           |                                           |                                           |                                  |                                 |                                        |                                             |                                                |                                    |                                |                                               |                                 |                                               |                               |                                         |                                                 |                                                            |                                             |                                            |                                |                                        |                                          |                                     |                                   |                                      |                                  |                                  |                                     |                                        |                                     |                                 |                                             |                                                          |                                       |                                  |                                        |                                      |                                                |                                           |
| Skid-tube <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Cross tube <input type="checkbox"/>                        | Water Jet <input type="checkbox"/>                                                                                                                                                            | Engineering <input type="checkbox"/>          |                                                                                                                                                                                                                                                                                                                        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| Thermoforming <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 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| Large Fab <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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| <u>Take 2 for Robot (Test)</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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| <b>Root Cause</b><br><table style="width:100%; border: none;"> <tr> <td style="width:15%;">Environment <input type="checkbox"/></td> <td style="width:15%;">No Re-verification <input type="checkbox"/></td> </tr> <tr> <td>Design <input type="checkbox"/></td> <td>Operator <input type="checkbox"/></td> </tr> <tr> <td>Doc/Data <input type="checkbox"/></td> <td>Offset/Setup <input type="checkbox"/></td> </tr> <tr> <td>Equip/Tooling <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> </tr> <tr> <td>Handling/Pre <input type="checkbox"/></td> <td>Training <input type="checkbox"/></td> </tr> <tr> <td>Material <input type="checkbox"/></td> <td>Use for Testing <input type="checkbox"/></td> </tr> <tr> <td>Internal Transport <input type="checkbox"/></td> <td>Poor Information <input type="checkbox"/></td> </tr> <tr> <td>Tribal Knowledge <input type="checkbox"/></td> <td>Rushing <input type="checkbox"/></td> </tr> <tr> <td>LOA <input type="checkbox"/></td> <td><input checked="" type="checkbox"/> Product Improvement</td> </tr> <tr> <td>Substation <input type="checkbox"/></td> <td>Process Improvement <input type="checkbox"/></td> </tr> <tr> <td>Past Expiry Date <input type="checkbox"/></td> <td>Manufacturing Process <input type="checkbox"/></td> </tr> <tr> <td>Misidentified <input type="checkbox"/></td> <td>Past Due <input type="checkbox"/></td> </tr> </table> |                                                            |                                                                                                                                                                                               |                                               | Environment <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | No Re-verification <input type="checkbox"/> | Design <input type="checkbox"/> | Operator <input type="checkbox"/> | Doc/Data <input type="checkbox"/>                                                                                                                                              | Offset/Setup <input type="checkbox"/> | Equip/Tooling <input type="checkbox"/> | Supplier <input type="checkbox"/>   | Handling/Pre <input type="checkbox"/> | Training <input type="checkbox"/>    | Material <input type="checkbox"/>  | Use for Testing <input type="checkbox"/> | Internal Transport <input type="checkbox"/> | Poor Information <input type="checkbox"/> | Tribal Knowledge <input type="checkbox"/> | Rushing <input type="checkbox"/>   | LOA <input type="checkbox"/>                 | <input checked="" type="checkbox"/> Product Improvement | Substation <input type="checkbox"/>           | Process Improvement <input type="checkbox"/> | Past Expiry Date <input type="checkbox"/> | Manufacturing Process <input type="checkbox"/> | Misidentified <input type="checkbox"/> | Past Due <input type="checkbox"/> | <b>FAULT CATEGORY</b><br><table style="width:100%; border: none;"> <tr> <td style="width:15%;">Pressure/Forced <input type="checkbox"/></td> <td style="width:15%;">Temperature/Cure <input type="checkbox"/></td> <td style="width:15%;">Power Loss/Surge <input type="checkbox"/></td> <td style="width:15%;">Positioned Wrong <input type="checkbox"/></td> </tr> <tr> <td>Bending <input type="checkbox"/></td> <td>Set-up <input type="checkbox"/></td> <td>Folio/Program <input type="checkbox"/></td> <td>Outside Dimensions <input type="checkbox"/></td> </tr> <tr> <td>Centre Not Concentric <input type="checkbox"/></td> <td>BOM/Route <input type="checkbox"/></td> <td>Grain <input type="checkbox"/></td> <td>Over/Under tolerance <input type="checkbox"/></td> </tr> <tr> <td>Cracks <input type="checkbox"/></td> <td>Broken/Damage/Defect <input type="checkbox"/></td> <td>Weld <input type="checkbox"/></td> <td>Part Incorrect <input type="checkbox"/></td> </tr> <tr> <td>Crimp/Kink/Ripple/Wave <input type="checkbox"/></td> <td>Inspection Incomplete/Unqualified <input type="checkbox"/></td> <td>Wrong Stock Pulled <input type="checkbox"/></td> <td>Part Lost/Missing <input type="checkbox"/></td> </tr> <tr> <td>Cuffs <input type="checkbox"/></td> <td>Contamination <input type="checkbox"/></td> <td>Out of Sequence <input type="checkbox"/></td> <td>Part Moved <input type="checkbox"/></td> </tr> <tr> <td>Crushing <input type="checkbox"/></td> <td>Countersink <input type="checkbox"/></td> <td>Off-set <input type="checkbox"/></td> <td>Drawing <input type="checkbox"/></td> </tr> <tr> <td>Heat Treat <input type="checkbox"/></td> <td>Cut Too Short <input type="checkbox"/></td> <td>Mislabeled <input type="checkbox"/></td> <td>Finish <input type="checkbox"/></td> </tr> <tr> <td>Wave/Twist in Tube <input type="checkbox"/></td> <td>Instructions Incomplete/Unclear <input type="checkbox"/></td> <td>Fit/Function <input type="checkbox"/></td> <td>Misread <input type="checkbox"/></td> </tr> <tr> <td>Marks/Chatter <input type="checkbox"/></td> <td>Drill Holes <input type="checkbox"/></td> <td>Misaligned/off center <input type="checkbox"/></td> <td>Turning Sequence <input type="checkbox"/></td> </tr> </table> |  |  |  |  |  | Pressure/Forced <input type="checkbox"/> | Temperature/Cure <input type="checkbox"/> | Power Loss/Surge <input type="checkbox"/> | Positioned Wrong <input type="checkbox"/> | Bending <input type="checkbox"/> | Set-up <input type="checkbox"/> | Folio/Program <input type="checkbox"/> | Outside Dimensions <input type="checkbox"/> | Centre Not Concentric <input type="checkbox"/> | BOM/Route <input type="checkbox"/> | Grain <input type="checkbox"/> | Over/Under tolerance <input type="checkbox"/> | Cracks <input type="checkbox"/> | Broken/Damage/Defect <input type="checkbox"/> | Weld <input type="checkbox"/> | Part Incorrect <input type="checkbox"/> | Crimp/Kink/Ripple/Wave <input type="checkbox"/> | Inspection Incomplete/Unqualified <input type="checkbox"/> | Wrong Stock Pulled <input type="checkbox"/> | Part Lost/Missing <input type="checkbox"/> | Cuffs <input type="checkbox"/> | Contamination <input type="checkbox"/> | Out of Sequence <input type="checkbox"/> | Part Moved <input type="checkbox"/> | Crushing <input type="checkbox"/> | Countersink <input type="checkbox"/> | Off-set <input type="checkbox"/> | Drawing <input type="checkbox"/> | Heat Treat <input type="checkbox"/> | Cut Too Short <input type="checkbox"/> | Mislabeled <input type="checkbox"/> | Finish <input type="checkbox"/> | Wave/Twist in Tube <input type="checkbox"/> | Instructions Incomplete/Unclear <input type="checkbox"/> | Fit/Function <input type="checkbox"/> | Misread <input type="checkbox"/> | Marks/Chatter <input type="checkbox"/> | Drill Holes <input type="checkbox"/> | Misaligned/off center <input type="checkbox"/> | Turning Sequence <input type="checkbox"/> |
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| Doc/Data <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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| Equip/Tooling <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 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| Handling/Pre <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  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| Material <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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| Internal Transport <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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| Tribal Knowledge <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              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| LOA <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <input checked="" type="checkbox"/> Product Improvement    |                                                                                                                                                                                               |                                               |                                                                                                                                                                                                                                                                                                                        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| Substation <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    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| Past Expiry Date <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              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| Misidentified <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 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| Pressure/Forced <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               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| Bending <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       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| Centre Not Concentric <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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| Cracks <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| Crimp/Kink/Ripple/Wave <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| Cuffs <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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| Crushing <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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| Heat Treat <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Cut Too Short <input type="checkbox"/>                     | Mislabeled <input type="checkbox"/>                                                                                                                                                           | Finish <input type="checkbox"/>               |                                                                                                                                                                                                                                                                                                                        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| Wave/Twist in Tube <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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| Marks/Chatter <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Drill Holes <input type="checkbox"/>                       | Misaligned/off center <input type="checkbox"/>                                                                                                                                                | Turning Sequence <input type="checkbox"/>     |                                                                                                                                                                                                                                                                                                                        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                                                                                                                                                                                                                                                                                                                                                                                                   |                                                            |                                                                                                                                                                                               |                                               | <input checked="" type="checkbox"/> OTHER : <u>Robot Testing</u>                                                                                                                                                                                                                                                       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**Work Order ID 142868**

Monday, March 14, 2016 11:26:48 AM

**\*142868\***

Page 4

Item ID: D3319-3

Accept

**\*N900040100\***Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Full Length Wearplate

Start Date: 3/15/2016 Start Qty: 12.00

**\*12\***

Cust Item ID:

Required Date: 3/31/2016 Req'd Qty: 12.00

**\*12\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description                                                                                                                                                               | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp    |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|-------------------|
| 190                            | Grey Sandtex(Ref:4.3.5.6) per QSI005 4.3                                                                                                                                               | 0.00                 |         |        |              |               |               |                  |                   |
| <b>*190*</b>                   | <i>in 130746.</i>                                                                                                                                                                      |                      |         |        |              | <i>10</i>     | <i>0</i>      | <i>16-03-24</i>  | <i>333</i>        |
| Powdercoat                     | Memo                                                                                                                                                                                   | 0.00                 |         |        |              |               |               |                  |                   |
| Powder Coating                 | START TIME: <i>8:20.</i>                                                                                                                                                               |                      |         |        |              |               |               |                  |                   |
|                                | OVEN TEMPERATURE: <i>320°</i>                                                                                                                                                          |                      |         |        |              |               |               |                  |                   |
|                                | FINISH TIME: <i>8:50.</i>                                                                                                                                                              |                      |         |        |              |               |               |                  |                   |
| 200                            | QC3- Inspect Part Finish                                                                                                                                                               | 0.00                 |         |        |              |               |               |                  | DAS<br>38<br>9-89 |
| <b>*200*</b>                   |                                                                                                                                                                                        |                      |         |        |              |               |               |                  |                   |
| QC                             | Memo                                                                                                                                                                                   | 0.00                 |         |        |              |               |               |                  |                   |
| Quality Control                |                                                                                                                                                                                        |                      |         |        |              |               |               |                  | APR 02 2016       |
| 210                            | Packaging                                                                                                                                                                              | 0.00                 |         |        |              |               |               |                  |                   |
| <b>*210*</b>                   |                                                                                                                                                                                        |                      |         |        |              |               |               |                  |                   |
| Packaging                      | Memo                                                                                                                                                                                   | 0.00                 |         |        |              |               |               |                  | DAS<br>6<br>9-89  |
| Packaging                      | Identify on inside surface using a permanent fine point marker with the following:TCCA-PDA, Dart Aerospace Ltd.P/N: D3319-3, B/N: BXXXXXFor Product Eligibility see PDA05-18 and Stock |                      |         |        |              |               |               |                  | APR 05 2016       |
|                                | Location: <i>St603</i>                                                                                                                                                                 |                      |         |        |              |               |               |                  |                   |

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                              |                                                |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  |                       |                                                                                                                    |  |
|--------------------------------------------------------------|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|--|-----------------------|--------------------------------------------------------------------------------------------------------------------|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____ |                                                | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> |                                                            | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |                                               |  |                       |                                                                                                                    |  |
| Date :                                                       |                                                | Step #:                                                                                                                                                                            |                                                            | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  | MRB (QSI042) Approval |                                                                                                                    |  |
| Description Work Order Deviation                             |                                                |                                                                                                                                                                                    |                                                            | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                               |  |                       | Completed By<br><br><br>Lead hand / Supervisor<br>Approval Verification<br><br><br>QC / QA Coordinator<br>Approval |  |
|                                                              |                                                |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  |                       |                                                                                                                    |  |
|                                                              |                                                |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  |                       |                                                                                                                    |  |
| Root Cause                                                   |                                                | FAULT CATEGORY                                                                                                                                                                     |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  |                       |                                                                                                                    |  |
| Environment <input type="checkbox"/>                         | No Re-verification <input type="checkbox"/>    | Pressure/Forced <input type="checkbox"/>                                                                                                                                           | Temperature/Cure <input type="checkbox"/>                  | Power Loss/Surge <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Positioned Wrong <input type="checkbox"/>     |  |                       |                                                                                                                    |  |
| Design <input type="checkbox"/>                              | Operator <input type="checkbox"/>              | Bending <input type="checkbox"/>                                                                                                                                                   | Set-up <input type="checkbox"/>                            | Folio/Program <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Outside Dimensions <input type="checkbox"/>   |  |                       |                                                                                                                    |  |
| Doc/Data <input type="checkbox"/>                            | Offset/Setup <input type="checkbox"/>          | Centre Not Concentric <input type="checkbox"/>                                                                                                                                     | BOM/Route <input type="checkbox"/>                         | Grain <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Over/Under tolerance <input type="checkbox"/> |  |                       |                                                                                                                    |  |
| Equip/Tooling <input type="checkbox"/>                       | Supplier <input type="checkbox"/>              | Cracks <input type="checkbox"/>                                                                                                                                                    | Broken/Damage/Defect <input type="checkbox"/>              | Weld <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Part Incorrect <input type="checkbox"/>       |  |                       |                                                                                                                    |  |
| Handling/Pre <input type="checkbox"/>                        | Training <input type="checkbox"/>              | Crimp/Kink/Ripple/Wave <input type="checkbox"/>                                                                                                                                    | Inspection Incomplete/Unqualified <input type="checkbox"/> | Wrong Stock Pulled <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Part Lost/Missing <input type="checkbox"/>    |  |                       |                                                                                                                    |  |
| Material <input type="checkbox"/>                            | Use for Testing <input type="checkbox"/>       | Cuffs <input type="checkbox"/>                                                                                                                                                     | Contamination <input type="checkbox"/>                     | Out of Sequence <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Part Moved <input type="checkbox"/>           |  |                       |                                                                                                                    |  |
| Internal Transport <input type="checkbox"/>                  | Poor Information <input type="checkbox"/>      | Crushing <input type="checkbox"/>                                                                                                                                                  | Countersink <input type="checkbox"/>                       | Off-set <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Drawing <input type="checkbox"/>              |  |                       |                                                                                                                    |  |
| Tribal Knowledge <input type="checkbox"/>                    | Rushing <input type="checkbox"/>               | Heat Treat <input type="checkbox"/>                                                                                                                                                | Cut Too Short <input type="checkbox"/>                     | Mislabeled <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Finish <input type="checkbox"/>               |  |                       |                                                                                                                    |  |
| LOA <input type="checkbox"/>                                 | Product Improvement <input type="checkbox"/>   | Wave/Twist in Tube <input type="checkbox"/>                                                                                                                                        | Instructions Incomplete/Unclear <input type="checkbox"/>   | Fit/Function <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Misread <input type="checkbox"/>              |  |                       |                                                                                                                    |  |
| Substation <input type="checkbox"/>                          | Process Improvement <input type="checkbox"/>   | Marks/Chatter <input type="checkbox"/>                                                                                                                                             | Drill Holes <input type="checkbox"/>                       | Misaligned/off center <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Turning Sequence <input type="checkbox"/>     |  |                       |                                                                                                                    |  |
| Past Expiry Date <input type="checkbox"/>                    | Manufacturing Process <input type="checkbox"/> | OTHER : _____                                                                                                                                                                      |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  |                       |                                                                                                                    |  |
| Misidentified <input type="checkbox"/>                       | Past Due <input type="checkbox"/>              |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  |                       |                                                                                                                    |  |



**Work Order ID 142868****\*142868\***

Page 5

Monday, March 14, 2016 11:26:48 AM

Item ID: D3319-3      Accept      **\*N900040100\***      Setup Start **\*NS1\***  
Revision ID:      Stop **\*NS2\***  
Item Name: Full Length Wearplate  
Start Date: 3/15/2016      Start Qty: 12.00      **\*12\***      Cust Item ID:  
Required Date: 3/31/2016      Req'd Qty: 12.00      **\*12\***      Customer:  
Reference:

Approvals:      Process Plan:      Date:      Tooling:      Date:      Run Start **\*NR1\***  
QC:      Date:      SPC (Y/N):      Date:      Stop **\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description                    | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|---------------------------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| 220                            | QC21- Final Inspection - Work Order Release | 0.00                 |         |        |              |               |               |                  |                |
| <b>*220*</b><br>QC             | Memo                                        | 0.02                 |         |        |              |               |               |                  |                |
| Quality Control                |                                             |                      |         |        |              |               |               |                  |                |

MLJ      APR 06 2016

MLJ      APR 06 2016

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

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| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>             Skid-tube <input type="checkbox"/><br/>             Machining <input type="checkbox"/><br/>             Thermoforming <input type="checkbox"/><br/>             Large Fab <input type="checkbox"/> </div> <div>             Cross tube <input type="checkbox"/><br/>             Small Fab <input type="checkbox"/><br/>             Finishing <input type="checkbox"/><br/>             Composite <input type="checkbox"/> </div> <div>             Water Jet <input type="checkbox"/><br/>             Prod. Eng. Coord. <input type="checkbox"/><br/>             Rec/Store/Packaging <input type="checkbox"/><br/>             Supplier <input type="checkbox"/> </div> <div>             Engineering <input type="checkbox"/><br/>             Quality <input type="checkbox"/><br/>             Other <input type="checkbox"/> </div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                              |  |
| Date :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Step #:                                                                                                                                                                            | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | MRB (QSI042) Approval                        |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                    | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                              |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | Lead hand / Supervisor Approval Verification |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | QC / QA Coordinator Approval                 |  |
| <b>Root Cause</b><br><div style="display: flex; justify-content: space-between;"> <div>             Environment <input type="checkbox"/><br/>             Design <input type="checkbox"/><br/>             Doc/Data <input type="checkbox"/><br/>             Equip/Tooling <input type="checkbox"/><br/>             Handling/Pre <input type="checkbox"/><br/>             Material <input type="checkbox"/><br/>             Internal Transport <input type="checkbox"/><br/>             Tribal Knowledge <input type="checkbox"/><br/>             LOA <input type="checkbox"/><br/>             Substation <input type="checkbox"/><br/>             Past Expiry Date <input type="checkbox"/><br/>             Misidentified <input type="checkbox"/> </div> <div>             No Re-verification <input type="checkbox"/><br/>             Operator <input type="checkbox"/><br/>             Offset/Setup <input type="checkbox"/><br/>             Supplier <input type="checkbox"/><br/>             Training <input type="checkbox"/><br/>             Use for Testing <input type="checkbox"/><br/>             Poor Information <input type="checkbox"/><br/>             Rushing <input type="checkbox"/><br/>             Product Improvement <input type="checkbox"/><br/>             Process Improvement <input type="checkbox"/><br/>             Manufacturing Process <input type="checkbox"/><br/>             Past Due <input type="checkbox"/> </div> </div> |                                                                                                                                                                                    | <b>FAULT CATEGORY</b><br><div style="display: flex; justify-content: space-between;"> <div>             Pressure/Forced <input type="checkbox"/><br/>             Bending <input type="checkbox"/><br/>             Centre Not Concentric <input type="checkbox"/><br/>             Cracks <input type="checkbox"/><br/>             Crimp/Kink/Ripple/Wave <input type="checkbox"/><br/>             Cuffs <input type="checkbox"/><br/>             Crushing <input type="checkbox"/><br/>             Heat Treat <input type="checkbox"/><br/>             Wave/Twist in Tube <input type="checkbox"/><br/>             Marks/Chatter <input type="checkbox"/> </div> <div>             Temperature/Cure <input type="checkbox"/><br/>             Set-up <input type="checkbox"/><br/>             BOM/Route <input type="checkbox"/><br/>             Broken/Damage/Defect <input type="checkbox"/><br/>             Inspection Incomplete/Unqualified <input type="checkbox"/><br/>             Contamination <input type="checkbox"/><br/>             Countersink <input type="checkbox"/><br/>             Cut Too Short <input type="checkbox"/><br/>             Instructions Incomplete/Unclear <input type="checkbox"/><br/>             Drill Holes <input type="checkbox"/> </div> <div>             Power Loss/Surge <input type="checkbox"/><br/>             Folio/Program <input type="checkbox"/><br/>             Grain <input type="checkbox"/><br/>             Weld <input type="checkbox"/><br/>             Wrong Stock Pulled <input type="checkbox"/><br/>             Out of Sequence <input type="checkbox"/><br/>             Off-set <input type="checkbox"/><br/>             Misabeled <input type="checkbox"/><br/>             Fit/Function <input type="checkbox"/><br/>             Misaligned/off center <input type="checkbox"/> </div> <div>             Positioned Wrong <input type="checkbox"/><br/>             Outside Dimensions <input type="checkbox"/><br/>             Over/Under tolerance <input type="checkbox"/><br/>             Part Incorrect <input type="checkbox"/><br/>             Part Lost/Missing <input type="checkbox"/><br/>             Part Moved <input type="checkbox"/><br/>             Drawing <input type="checkbox"/><br/>             Finish <input type="checkbox"/><br/>             Misread <input type="checkbox"/><br/>             Turning Sequence <input type="checkbox"/> </div> </div> |  |                                              |  |
| OTHER : <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |                                              |  |

# Picklist Print

Monday, March 14, 2016 11:26:47 AM

Work Order ID: 142868

**\*142868\***

Parent Item: D3319-3

**\*D3319-3\***

Parent Item Name: Full Length Wearplate

Start Date: 3/15/2016

Required Date: 3/31/2016

Start Qty: 12.00

Required Qty: 12.00

Comments: IPP: A05.05.12New issueKJ/JLM  
IPP Rev:B Now on Waterjet 06-10-03 JLM

| Component Item ID/<br>Item Name | Replacement<br>Item ID | Mfg/<br>Purch | Bin<br>Item | Primary<br>Location | Last<br>Location | Route<br>Seq ID | Unit of<br>Measure | Qty on<br>Hand | Qty per Kit | Total<br>Qty | Qty<br>Issued | Date<br>Issued | Status |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|--------------|---------------|----------------|--------|
| M1010S18GA                      |                        | Purchased     |             | No                  |                  | 100             | sf                 | 129.4042       | 3.2524      | 41.08295     |               |                |        |

**\*M1010S18GA\***

1010/1025 SHEET .048

**\*\***

*02/16/03/17*

Location

Loc Qty

Loc Code

MAT019

129.404152

124428

3

m130454

0.3542

m132886

24.15

m134083

101.9

32.1

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

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| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>             Skid-tube <input type="checkbox"/><br/>             Machining <input type="checkbox"/><br/>             Thermoforming <input type="checkbox"/><br/>             Large Fab <input type="checkbox"/> </div> <div>             Cross tube <input type="checkbox"/><br/>             Small Fab <input type="checkbox"/><br/>             Finishing <input type="checkbox"/><br/>             Composite <input type="checkbox"/> </div> <div>             Water Jet <input type="checkbox"/><br/>             Prod. Eng. Coord. <input type="checkbox"/><br/>             Rec/Store/Packaging <input type="checkbox"/><br/>             Supplier <input type="checkbox"/> </div> <div>             Engineering <input type="checkbox"/><br/>             Quality <input type="checkbox"/><br/>             Other <input type="checkbox"/> </div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                    |  |
| Date :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Step #:                                                                                                                                                                            | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | MRB (QSI042) Approval                                                                                              |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                    | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | Completed By<br><br><br>Lead hand / Supervisor<br>Approval Verification<br><br><br>QC / QA Coordinator<br>Approval |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                                                    |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                                                    |  |
| <b>Root Cause</b><br><div style="display: flex;"> <div style="flex: 1;">           Environment <input type="checkbox"/><br/>           Design <input type="checkbox"/><br/>           Doc/Data <input type="checkbox"/><br/>           Equip/Tooling <input type="checkbox"/><br/>           Handling/Pre <input type="checkbox"/><br/>           Material <input type="checkbox"/><br/>           Internal Transport <input type="checkbox"/><br/>           Tribal Knowledge <input type="checkbox"/><br/>           LOA <input type="checkbox"/><br/>           Substation <input type="checkbox"/><br/>           Past Expiry Date <input type="checkbox"/><br/>           Misidentified <input type="checkbox"/> </div> <div style="flex: 1;">           No Re-verification <input type="checkbox"/><br/>           Operator <input type="checkbox"/><br/>           Offset/Setup <input type="checkbox"/><br/>           Supplier <input type="checkbox"/><br/>           Training <input type="checkbox"/><br/>           Use for Testing <input type="checkbox"/><br/>           Poor Information <input type="checkbox"/><br/>           Rushing <input type="checkbox"/><br/>           Product Improvement <input type="checkbox"/><br/>           Process Improvement <input type="checkbox"/><br/>           Manufacturing Process <input type="checkbox"/><br/>           Past Due <input type="checkbox"/> </div> </div> |                                                                                                                                                                                    | <b>FAULT CATEGORY</b><br><div style="display: flex;"> <div style="flex: 1;">           Pressure/Forced <input type="checkbox"/><br/>           Bending <input type="checkbox"/><br/>           Centre Not Concentric <input type="checkbox"/><br/>           Cracks <input type="checkbox"/><br/>           Crimp/Kink/Ripple/Wave <input type="checkbox"/><br/>           Cuffs <input type="checkbox"/><br/>           Crushing <input type="checkbox"/><br/>           Heat Treat <input type="checkbox"/><br/>           Wave/Twist in Tube <input type="checkbox"/><br/>           Marks/Chatter <input type="checkbox"/> </div> <div style="flex: 1;">           Temperature/Cure <input type="checkbox"/><br/>           Set-up <input type="checkbox"/><br/>           BOM/Route <input type="checkbox"/><br/>           Broken/Damage/Defect <input type="checkbox"/><br/>           Inspection Incomplete/Unqualified <input type="checkbox"/><br/>           Contamination <input type="checkbox"/><br/>           Countersink <input type="checkbox"/><br/>           Cut Too Short <input type="checkbox"/><br/>           Instructions Incomplete/Unclear <input type="checkbox"/><br/>           Drill Holes <input type="checkbox"/> </div> <div style="flex: 1;">           Power Loss/Surge <input type="checkbox"/><br/>           Folio/Program <input type="checkbox"/><br/>           Grain <input type="checkbox"/><br/>           Weld <input type="checkbox"/><br/>           Wrong Stock Pulled <input type="checkbox"/><br/>           Out of Sequence <input type="checkbox"/><br/>           Off-set <input type="checkbox"/><br/>           Mislabeled <input type="checkbox"/><br/>           Fit/Function <input type="checkbox"/><br/>           Misaligned/off center <input type="checkbox"/> </div> <div style="flex: 1;">           Positioned Wrong <input type="checkbox"/><br/>           Outside Dimensions <input type="checkbox"/><br/>           Over/Under tolerance <input type="checkbox"/><br/>           Part Incorrect <input type="checkbox"/><br/>           Part Lost/Missing <input type="checkbox"/><br/>           Part Moved <input type="checkbox"/><br/>           Drawing <input type="checkbox"/><br/>           Finish <input type="checkbox"/><br/>           Misread <input type="checkbox"/><br/>           Turning Sequence <input type="checkbox"/> </div> </div> |  |                                                                                                                    |  |
| OTHER : <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                                                    |  |

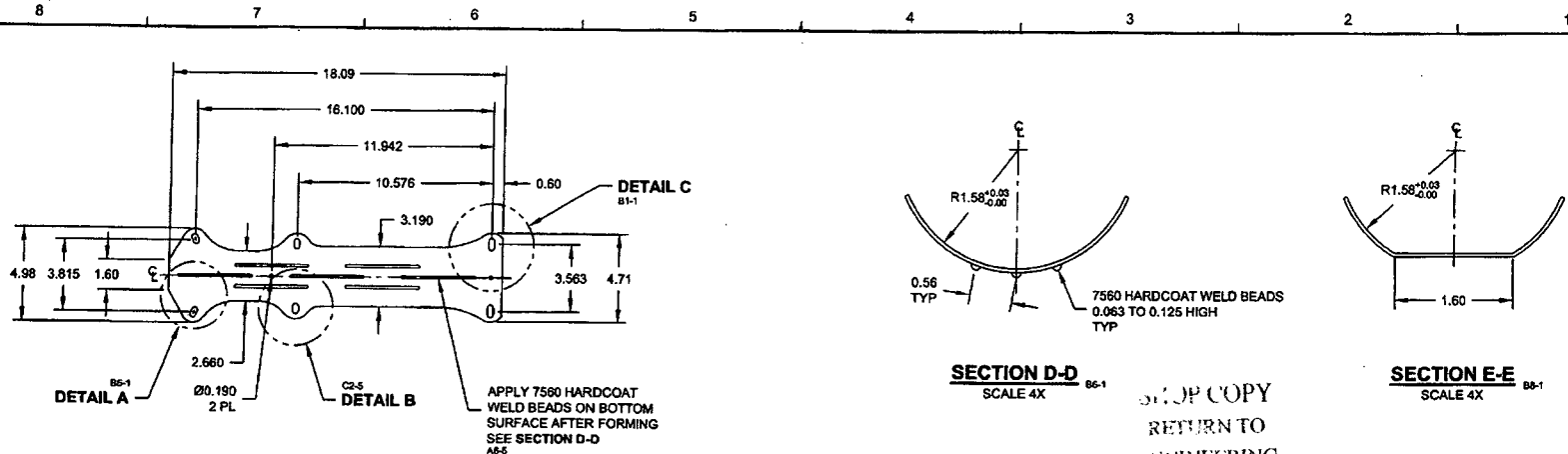
|                                     |  |                     |         |
|-------------------------------------|--|---------------------|---------|
| <b>DART AEROSPACE LTD</b>           |  | <b>Work Order:</b>  | 142868  |
| <b>Description: Wearplate</b>       |  | <b>Part Number:</b> | D3319-3 |
| <b>Inspection Dwg: D3319 Rev: C</b> |  | <b>Page 1 of 1</b>  |         |

### FIRST ARTICLE INSPECTION CHECKLIST

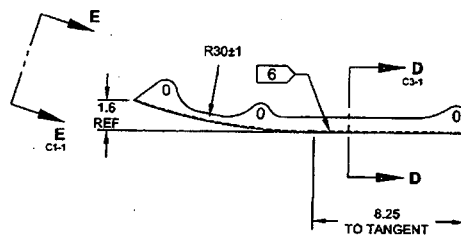
| Drawing Dimension | Tolerance     | Actual Dimension | Accept | Reject | Method of Inspection | Comments |
|-------------------|---------------|------------------|--------|--------|----------------------|----------|
| Ø0.190            | +0.005/-0.001 | Ø.189            | /      |        | V=D-02               |          |
| Ø0.500            | +0.006/-0.001 | Ø.499            | /      |        | V=D-01               |          |
| 0.316             | +/-0.010      | .317             | /      |        | Tap                  |          |
| 0.607             | +/-0.010      | .608             | /      |        |                      |          |
| 2.94              | +/-0.030      | 2.942            | /      |        |                      |          |
| 2.69              | +/-0.030      | 2.694            | /      |        |                      |          |
| 3.527             | +/-0.010      | 3.525            | /      |        |                      |          |
| 4.52              | +/-0.030      | 4.519            | /      |        |                      |          |
| 5.063             | +/-0.010      | 5.060            | /      |        |                      |          |
| 6.16              | +/-0.030      | 6.162            | /      |        |                      |          |
| 0.60              | +/-0.030      | .599             | /      |        |                      |          |
| 8.690             | +/-0.010      | 8.694            | /      |        |                      |          |
| 30.790            | +/-0.010      | 30.790           | /      |        |                      |          |
| 52.88             | +/-0.030      | 52.88            | /      |        |                      |          |
| 62.770            | +/-0.010      | 62.770           | /      |        |                      |          |
| 74.420            | +/-0.010      | 74.420           | /      |        |                      |          |
| 75.52             | +/-0.030      | 75.52            | /      |        |                      |          |
| 0.050             | +/-0.010      |                  | /      |        |                      |          |
|                   |               |                  |        |        |                      |          |
|                   |               |                  |        |        |                      |          |
|                   |               |                  |        |        |                      |          |
|                   |               |                  |        |        |                      |          |

|                     |          |                    |             |                              |  |
|---------------------|----------|--------------------|-------------|------------------------------|--|
| <b>Measured by:</b> | DK       | <b>Audited by:</b> | DAS<br>38   | <b>Preliminary Approval:</b> |  |
| <b>Date:</b>        | 16/03/16 | <b>Date:</b>       | MAR 17 2016 | <b>Date:</b>                 |  |

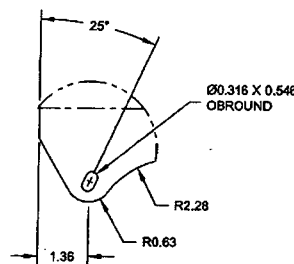
| Rev | Date     | Change                           | Revised by | Approved |
|-----|----------|----------------------------------|------------|----------|
| A   | 07.07.18 | New Issue                        | KJ/JLM     |          |
| B   | 12.05.15 | Dimensions updated per Dwg Rev C | KJ         |          |



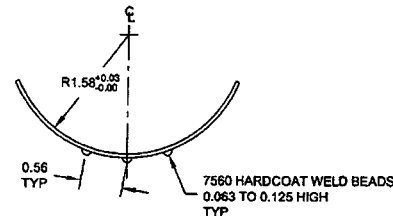
**D3319-1F FLAT PATTERN**



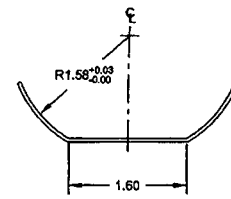
**D3319-1 BENDING DETAIL**  
MAKE FROM D3319-1F



**DETAIL A**  
SCALE 4X

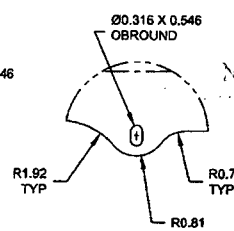


**SECTION D-D**  
SCALE 4X

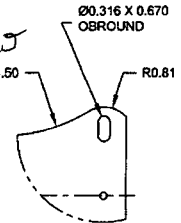


**SECTION E-E**  
SCALE 4X

STOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO 142868 MLW  
1603-14



**DETAIL B**  
SCALE 4X



**DETAIL C**  
SCALE 4X

**D3319-1 WEARPLATE**

**NOTES:**

- 1) MATERIAL: AISI 1010-1025 OR ASTM A36/A366/A1008 OR CSA G40-21, 38W/44W/50W/60W/70W SERIES STEEL 18 GAUGE (0.048 THICK) REF. DART SPEC. M1010-S18GA
- 2) FINISH: POWDER COAT GREY SANDEX (REF. 4.3.5.6) PER DART QSI 005 4.3
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY ON INSIDE SURFACE WITH "TCCA-PDA, DART AEROSPACE LTD., P/N D3319-1 B/N BXXXXX, FOR PRODUCT ELIGIBILITY SEE PDA05-18" PER DART QSI 044 6.1 (FINE POINT PAINT MARKER)
- 7) WEIGHT: 0.90 lbs APPROX
- 8) SYMMETRY: ABOUT CENTERLINE

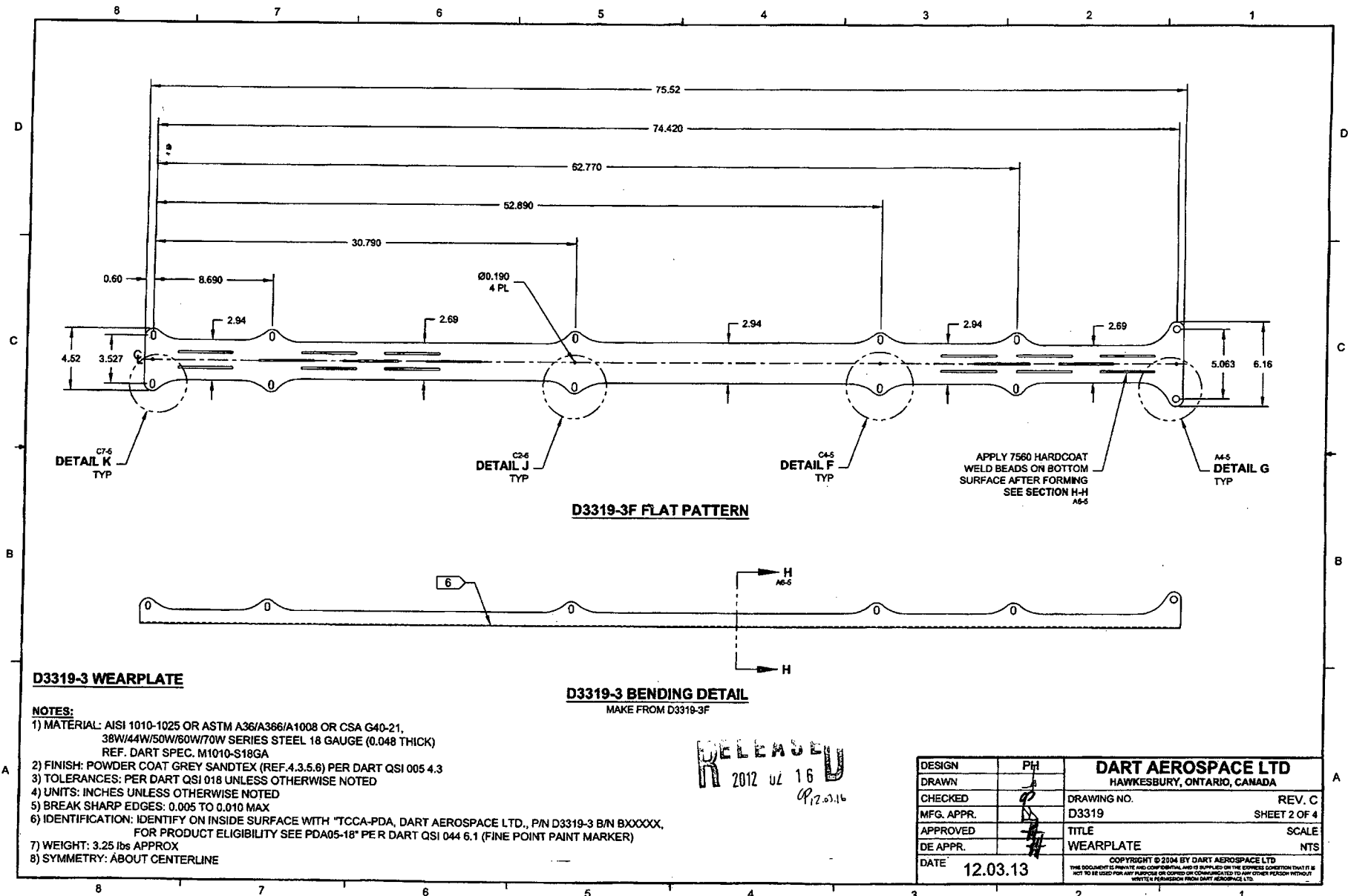
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2012-03-16  
PER ECN 12-946 12.03.16

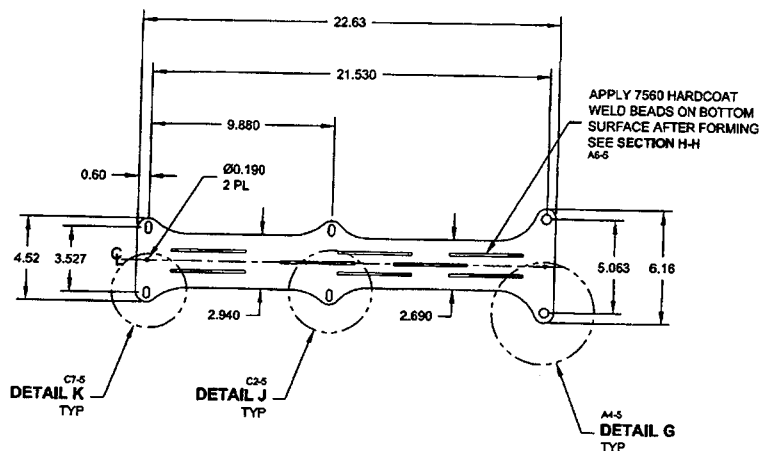
|            |                                                                                                          |    |          |
|------------|----------------------------------------------------------------------------------------------------------|----|----------|
| C          | UPDATE TO CURRENT STANDARDS IAW QSI 043; CLOSED AFT MOST HOLE ON -3/-5/-7 (REF DETAIL G), SEE NCR12-547. | MB | 12.03.13 |
| B          | WIDEN HOLES, REDUCE WIDTH ON -3/-5/-7                                                                    | PH | 05.06.06 |
| A          | NEW ISSUE                                                                                                | PH | 04.09.24 |
| REV.       | DESCRIPTION                                                                                              | BY | DATE     |
| DESIGN     | PH                                                                                                       |    |          |
| DRAWN      |                                                                                                          |    |          |
| CHECKED    |                                                                                                          |    |          |
| MFG. APPR. |                                                                                                          |    |          |
| APPROVED   |                                                                                                          |    |          |
| DE APPR.   |                                                                                                          |    |          |
| DATE       | 12.03.13                                                                                                 |    |          |

**DART AEROSPACE LTD**  
HAWKESBURY, ONTARIO, CANADA

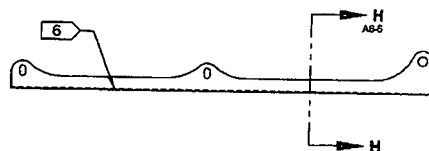
DRAWING NO. D3319  
TITLE WEARPLATE  
REV. C  
SHEET 1 OF 4  
SCALE NTS

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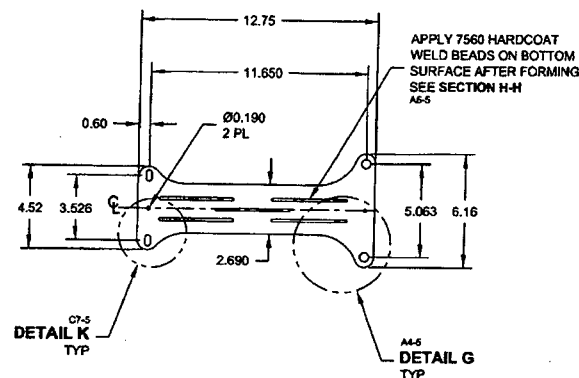




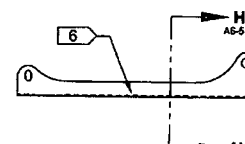
**D3319-5F FLAT PATTERN**



**D3319-5 BENDING DETAIL**  
MAKE FROM D3319-5F



**D3319-7F FLAT PATTERN**



**D3319-7 BENDING DETAIL**  
MAKE FROM D3319-7F

**D3319-5/-7 WEARPLATE**

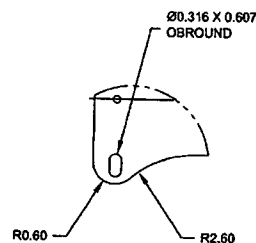
**NOTES:**

- 1) MATERIAL: AISI 1010-1025 OR ASTM A36/A366/A1008 OR CSA G40-21, 38W/44W/50W/60W/70W SERIES STEEL 18 GAUGE (0.048 THICK) REF. DART SPEC. M1010-S18GA
- 2) FINISH: POWDER COAT GREY SANTEX (REF.4.3.5.6) PER DART QSI 005 4.3
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY ON INSIDE SURFACE WITH "TCCA-PDA, DART AEROSPACE LTD., P/N D3319-X B/N BXXXXX, FOR PRODUCT ELIGIBILITY SEE PDA05-18" PER DART QSI 046 6.1 (PERMANENT MARKER)
- 7) WEIGHT: D3319-5 = 1.05 lbs APPROX; D3319-7 = 0.60 lbs APPROX
- 8) SYMMETRY: ABOUT CENTERLINE

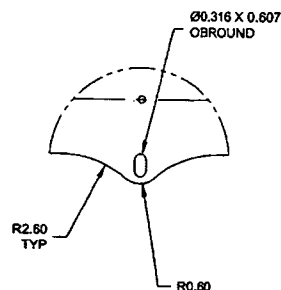
RELEASED  
2012-02-16  
4720316

|                                                                                                                                                                                                                                |          |                                        |              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------|--------------|
| DESIGN                                                                                                                                                                                                                         | PH       | <b>DART AEROSPACE LTD</b>              |              |
| DRAWN                                                                                                                                                                                                                          |          | HAWKESBURY, ONTARIO, CANADA            |              |
| CHECKED                                                                                                                                                                                                                        |          | DRAWING NO.                            | REV. C       |
| MFG. APPR.                                                                                                                                                                                                                     |          | D3319                                  | SHEET 3 OF 4 |
| APPROVED                                                                                                                                                                                                                       |          | TITLE                                  | SCALE        |
| DE APPR.                                                                                                                                                                                                                       |          | WEARPLATE                              | NTS          |
| DATE                                                                                                                                                                                                                           | 12.03.13 | COPYRIGHT © 2004 BY DART AEROSPACE LTD |              |
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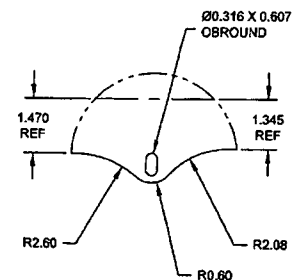




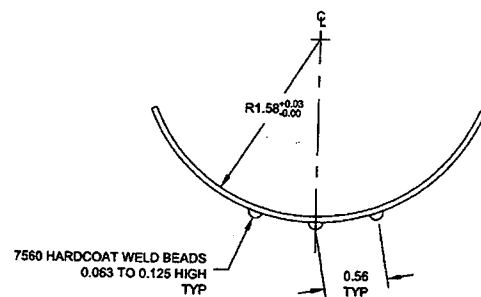
**DETAIL K**  
SCALE 2X  
B8-2  
C4-3  
C6-3



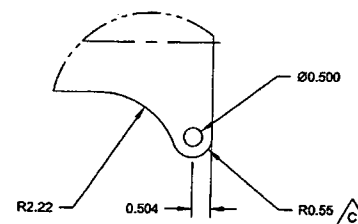
**DETAIL F**  
SCALE 2X  
B5-2



**DETAIL J**  
SCALE 2X  
B8-2  
C7-3



**SECTION H-H**  
SCALE 4X  
B4-2  
B5-3  
B6-3



**DETAIL G**  
SCALE 2X  
B8-2  
C2-3  
C6-3

**RELEASED**  
2012-02-16  
47.03.16

|                                                                                                                                                                                                                      |                                                                                       |                                        |              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|--------------|
| DESIGN                                                                                                                                                                                                               | PH                                                                                    | <b>DART AEROSPACE LTD</b>              |              |
| DRAWN                                                                                                                                                                                                                |                                                                                       | HAWKESBURY, ONTARIO, CANADA            |              |
| CHECKED                                                                                                                                                                                                              |  | DRAWING NO.                            | REV. C       |
| MFG. APPR.                                                                                                                                                                                                           |  | D3319                                  | SHEET 4 OF 4 |
| APPROVED                                                                                                                                                                                                             |  | TITLE                                  | SCALE        |
| DE APPR.                                                                                                                                                                                                             |  | WEARPLATE                              | NT           |
| DATE                                                                                                                                                                                                                 | 12.03.13                                                                              | COPYRIGHT © 2004 BY DART AEROSPACE LTD |              |
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